This listing of claims replaces all prior versions, and listings of claims in the instant application:

Listing of Claims:

1. (Currently amended) A gas flow control system for a semiconductor processing unit comprising:

a first mass flow controller located at a first location;

a support structure located at said semiconductor processing unit;

a gas manifold located at said support structure; and

a first gas manifold inlet valve located at said support structure and coupled between said gas manifold and said first mass flow controller, wherein said gas manifold and said first gas manifold inlet valve are located directly adjacent said semiconductor processing unit and at a second location separate and removed from said first location; and

a process gas supply line coupled to an outlet port of said gas manifold.

2. (Original) The system of Claim 1 further comprising a first gas manifold exhaust valve coupled between said first mass flow controller and an exhaust.

3. (Original) The system of Claim 1 further comprising:

a second mass flow controller located at said first location; and

a second gas manifold inlet valve located at said second location, said second gas manifold inlet valve being coupled between said second mass flow controller and said gas manifold.

4. (Original) The system of Claim 3 further comprising a first gas manifold exhaust valve coupled between said first mass flow controller and an exhaust.

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5. (Original) The system of Claim 4 further comprising a second gas manifold exhaust valve coupled between said second mass flow controller and said exhaust.

6. (Currently amended) The system of Claim 1 wherein said semiconductor processing unit comprises a reactor, wherein said gas manifold is coupled to one or more injector ports of said reactor by said process gas supply line.

7. (Original) The system of Claim 6 wherein said reactor is supported by said support structure.

8. (Currently amended) A gas flow control system for a semiconductor processing unit comprising:

a first mass flow controller located at a first location;

a support structure located at said semiconductor processing unit;

a gas manifold located at said support structure;

a first gas manifold inlet valve located at said support structure and coupled between said gas manifold and said first mass flow controller, wherein said gas manifold and said first gas manifold inlet valve are located at a second location separate and removed from said first location; ~~and~~

a gas cabinet, said first mass flow controller being located in said gas cabinet; and

a process gas supply line coupled to an outlet port of said gas manifold.

9. (Original) The system of Claim 1 further comprising a process gas source coupled to said first mass flow controller.

10. (Currently amended) A system comprising:

a semiconductor processing reactor;

a gas manifold;

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a first process gas source located at a first location;

a first regulator coupled to said first process gas source, said first regulator located at said first location;

a first gas manifold inlet valve coupled between said first regulator and said gas manifold, wherein said gas manifold and said first gas manifold inlet valve are located as close as physically possible to said semiconductor processing reactor and at a second location separate and removed from said first location;

a second process gas source located at said first location;

a second regulator coupled to said second process gas source, said second regulator located at said first location; ~~and~~

a second gas manifold inlet valve coupled between said second regulator and said gas manifold, said second gas manifold inlet valve located as close as physically possible to said semiconductor processing reactor and at said second location; and

a process gas supply line coupled to an outlet port of said gas manifold.

11. (Original) The system of Claim 10 further comprising:

a first gas manifold exhaust valve coupled between said first regulator and an exhaust; and

a second gas manifold exhaust valve coupled between said second regulator and said exhaust.

12-21. (Canceled)

22. (Previously presented) A system comprising:

a mixer;

a first gas source coupled to an inlet port of said mixer;

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a second gas source coupled to said inlet port of said mixer;

a first regulator coupled between said inlet port of said mixer and said first gas source;

a second regulator coupled between said inlet port of said mixer and said second gas source;

a third regulator coupled to an outlet port of said mixer; and

a check valve coupled to said outlet port of said mixer and to an exhaust.

23-24. (Canceled)

25. (Previously presented) A system comprising:

a mixer;

a first gas source coupled to an inlet port of said mixer;

a second gas source coupled to said inlet port of said mixer;

a first regulator coupled between said inlet port of said mixer and said first gas source;

a second regulator coupled between said inlet port of said mixer and said second gas source;

a third regulator coupled to an outlet port of said mixer;

a check valve coupled to said outlet port of said mixer and to an exhaust, wherein a first flow of a process gas exits said mixer, wherein a second flow of said process gas passes through said third regulator, a difference between said first flow and said second flow being a third flow of said process gas which passes through said check valve.

26. (Previously presented) The system of Claim 22 wherein said first gas source is a dopant gas source and wherein said second gas source is a carrier gas source.

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27. (Original) The system of Claim 22 wherein said first regulator regulates a flow rate of a flow of a first gas from said first gas source and wherein said second regulator regulates a flow rate of a flow of a second gas from said second gas source.

28. (Original) The system of Claim 27 wherein said first regulator and said second regulator are mass flow controllers.

29-34. (Canceled)

35. (Currently amended) A gas flow control system for a semiconductor processing unit comprising:

a first process gas source located at a first location;

a first mass flow controller located at said first location and coupled to said first process gas source;

a support structure located at said semiconductor processing unit;

a gas manifold attached to said support structure;

a process gas supply line coupled to an outlet port of said gas manifold;

a first gas manifold inlet valve attached to said support structure and coupled between said gas manifold and said first mass flow controller;

a second process gas source located at said first location;

a second mass flow controller located at said first location and coupled to said second process gas source; and

a second gas manifold inlet valve attached to said support structure and coupled between said gas manifold and said second mass flow controller,

wherein said gas manifold, said first gas manifold inlet valve and said second gas manifold inlet valve are located at a second location separate and removed from said first location,

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a first process gas from said first process gas source and a second process gas from said second process gas source mixing in said gas manifold.

36. (Canceled)

37. (Currently amended) A system comprising:

a mixer;

a first gas source coupled to an inlet port of said mixer;

a second gas source coupled to said inlet port of said mixer, wherein a first process gas from said first process gas source and a second process gas from said second process gas source mix in said mixer;

a first regulator coupled between said inlet port of said mixer and said first gas source;

a second regulator coupled between said inlet port of said mixer and said second gas source;

a third regulator coupled to an outlet port of said mixer, said third regulator being a mass flow controller; and ~~The system of Claim 36 further comprising~~ a check valve coupled to said outlet port of said mixer and to an exhaust.

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